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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/801,138	03/16/2004	Sung-ha Kim	Q74874	9244

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SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER

SEVER, ANDREW T

ART UNIT PAPER NUMBER

2851

DATE MAILED: 02/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/801,138	Applicant(s) KIM ET AL.	
	Examiner Andrew T. Sever	Art Unit 2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 November 2005 and 31 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
 4a) Of the above claim(s) 4,7-12 and 15-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5,6,13,14 and 18-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>5/04, 7/05, 1/06</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election of species I (claims 1, 2, 3, 5, 6, 13, 14, and 18-28) in the reply filed on 11/28/2005 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

2. Claims 4, 7-12, and 15-17 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 11/28/2005.

Specification

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-3, 5, 6, 13, 14, 18, 20, 22, 23, 26, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hitachi EP 1 253 787 as provided by the application) in view of Sato et al. (US 5,042,921) and Lambert (US 6,288,815.)

Hitachi teaches in figure 6 a projection system comprising:

A light source (arc lamp inside of 1);

A polarization conversion system (4);

A reflection mirror (literally what the "1" is pointed at), which reflects the beam emitted from the light source and any light reflected back towards the light source;

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A color separator (7), which separates an incident beam according to color;

A scrolling unit (43);

A light valve (12) which processes a beam transmitted by the color separator and the scrolling unit according to an image signal and forms a color picture; and

A projection lens (13) unit, which magnifies the color picture, formed by the light valve and projects the magnified color picture onto a screen.

Hitachi does not teach that the polarization conversion system has an incidence plane through which light emitted from the light source enters, which transmits a first polarized beam from the incident light and reflects a second polarized beam towards the incidence plane and changes the polarization of the second polarized beam. Such a teaching is provided by Sato, in figure 8, which teaches a light source (104) a reflector (103) an incidence plane (plane facing 109 of cube 108), which reflects a light (AS) of a second polarization while transmitting a light of a first polarization (AP). The second light (AS) is converted to the first polarization and reflected off reflector 103. Sato teaches in column 6 lines 49-52 that such a structure allows for almost no waste lost compared to other prior art methods such as that taught by Hitachi and as taught in column 7 lines 10-27 this allows an image with high luminance to be displayed. Accordingly since it is desirable for a projector to be as bright as possible, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the polarization conversion system of Sato in the projection system of Hitachi as it would achieve a bright projected image.

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Hitachi in view of Sato does not teach that the scrolling unit includes at least one lens cell. Such a scrolling unit is taught by Lambert in figure 7a a scrolling unit (30) which comprises of at least one lens cell 31, which converts a rotation of the lens cell into a rectilinear motion of an area of the lens cell through which light passes so that the incident beam is scrolled (see description in column 10 line 65 through column 11 line 7. Lambert teaches in column 5 lines 27-54 that this structure coupled with refocus and post focus lenses allows for the scanning of the color lights to have less non-linearities which are present in prior art projectors such as Hitachi. Accordingly since as taught by Lambert the scrolling unit of Lambert produces a better image, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the scrolling unit of Hitachi in view of Sato with the scrolling unit of Lambert.

With regards to applicant's claim 2:

See figure 8 of Sato, which teaches a reflection member (10), a polarization filter (the diagonal line across prism 108), and a wavelength plate (109).

With regards to applicant's claim 3:

See figure 6 of Sato, which includes first and second polarization filters and wherein the opposite filter serves as a first or second reflection member respectively (Also in view of figure 9 it would have been obvious to provide reflection members in the form of part 110 to catch any leak light).

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With regards to applicant's claim 5:

Part 109 of Sato is specified to be a $\frac{1}{4}$ wavelength plate (it is specified to rotate the light through 45 degrees which is what a $\frac{1}{4}$ wavelength plate does.)

With regards to applicant's claim 6:

Clearly the plate covers the entire incidence plane of the polarization conversion system.

With regards to applicant's claim 13:

The reflector (105) of Sato is specified to be parabolic (see column 5 lines 35 and 36), since the reflector of the light source is necessary to the functioning of the polarization conversion system, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the reflector of Sato in the projection system of Hitachi.

With regards to applicant's claim 14:

The color separator of Hitachi comprises of first, second, and third dichroic filters (7a, 7b, and 7c respectively, see column 10 line 52 for example).

With regards to applicant's claim 18:

Lambert teaches in figures 7 various embodiments, which in figure 7b includes spirally arrange lens disk.

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With regards to applicant's claim 20:

As shown in figure 5 of Lambert focusing lenses are provided (part 22).

With regards to applicant's claim 22:

Hitachi teaches a lens (5a) disposed prior to the color separator, which collimates incident light (the scrolling unit in view of Lambert is disposed after the color separator)

With regards to applicant's claim 23:

Lenses 22 and 23 of Lambert are cylindrical lenses

With regards to applicant's claim 26:

Part 10 of Hitachi is a polarization beam splitter.

With regards to applicant's claim 27:

See paragraph 13 of Hitachi, which teaches that the light valve is a reflective liquid crystal display.

7. Claims 21 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hitachi in view of Sato and Lambert as applied to claims 1 and 26 respectively above, and further in view of English (US 6,877,865.)

As described in more detail above Hitachi in view of Sato and Lambert teaches among other things a projection system having a light source and a scrolling unit, however it

does not teach a spatial filter disposed after the light source and prior to the scrolling unit. Such a filter is taught by English in figure 7 which teaches a spatial filter (202) which is prior to a beam splitter but after the light source. It is described in more detail in column 8 lines 20-58. English teaches in column 2 lines 27-45 that such an aperture improves the color balance, which improves the projected image projected by the projection system. Accordingly since it is desirable to have good color balance, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the spatial filter of English prior to the scrolling unit and after the light source in the projection system of Hitachi in view of Sato and Lambert in order to improve the color balance.

With regards to claim 28:

Although Hitachi in view of Sato and Lambert teaches a polarization beam splitter it does not teach what form said splitter takes. English teaches in column 3 line 49 through column 4 line 41 that the use of a wire grid polarizer prior to a reflective liquid crystal light valve (LCOS) is preferable and well known and in combination with other components reduces numerical aperture as well as exhibits other well known advantages over prior art beam splitters. Accordingly since it is well known to use wire-grid polarizers in combination with reflective liquid crystal light valves due to their superior performance and reduce assembly cost, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use such a beam splitter in the projection device taught by Hitachi in view of Sato and Lambert.

Double Patenting

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

9. Claims 1, 2, 3, 5, 6, 13, 18-20, and 22-25 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 6, 18, and 19 of copending Application No. 10/862,906 in view of Sato et al. (US 5,042,921).

Claim 6 of the ‘906 application claims everything except that the structure of the polarization converter. Sato gives such a teaching in figure 8 which teaches a light source (104) a reflector (103) an incidence plane (plane facing 109 of cube 108), which reflects a light (AS) of a second polarization while transmitting a light of a first polarization (AP). The second light (AS) is converted to the first polarization and reflected off reflector 103. Sato teaches in column 6 lines 49-52 that such a structure allows for almost no waste lost compared to other prior art methods and as taught in column 7 lines 10-27 this allows an image with high luminance to be displayed.

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Accordingly since it is desirable for a projector to be as bright as possible, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the polarization conversion system of Sato in the projection system of claimed in claim 6 of the '906 application as it would achieve a bright projected image.

With regards to applicant's claim 2:

See figure 8 of Sato, which teaches a reflection member (10), a polarization filter (the diagonal line across prism 108), and a wavelength plate (109).

With regards to applicant's claim 3:

See figure 6 of Sato, which includes first and second polarization filters and wherein the opposite filter serves as a first or second reflection member respectively (Also in view of figure 9 it would have been obvious to provide reflection members in the form of part 110 to catch any leak light).

With regards to applicant's claim 5:

Part 109 of Sato is specified to be a $\frac{1}{4}$ wavelength plate (it is specified to rotate the light through 45 degrees which is what a $\frac{1}{4}$ wavelength plate does.)

With regards to applicant's claim 6:

Clearly the plate covers the entire incidence plane of the polarization conversion system.

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With regards to applicant's claim 13:

The reflector (105) of Sato is specified to be parabolic (see column 5 lines 35 and 36), since the reflector of the light source is necessary to the functioning of the polarization conversion system, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the reflector of Sato in the projection system claimed in the '906 application.

With regards to applicant's claim 19:

See claim 6 of the '906 application.

With regards to applicant's claims 20, 22-25:

See claims 18 and 19 of the '906 application.

This is a provisional obviousness-type double patenting rejection.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

US 2,811,077 to Wiemer et al. teaches in figure 1 a projector with a polarization conversion and splitting system.

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US 6,921,171 to Lee et al. has common inventors and assignee with the present application and should be reviewed for potential double patenting.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T. Sever whose telephone number is 571-272-2128. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "W B Perkey".

AS

William Perkey
Primary Examiner